

Lithium Iron Phosphate
Household Energy Storage Series

PRODUCT DESCRIPTION

WARNING

Please read the full documentation before installing or operating the battery pack.
Failure to comply with any instructions or warnings in this document may result in serious injury or fatal electric shock, and may also cause damage to the battery pack.

Product Manual

This manual applies to our lithium iron phosphate household energy storage products.

All specifications and instructions in this document are verified correct at the time of printing. As we continuously improve our products, we reserve the right to carry out product revisions without prior notice.

Pictures in this manual are for illustration only. Details may differ slightly according to different product versions.

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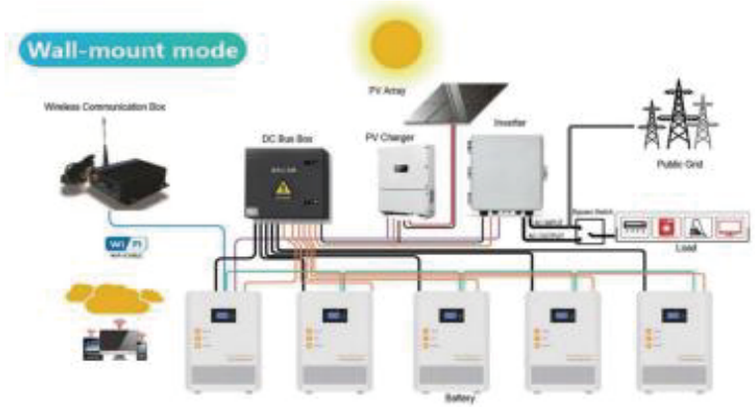
Lithium iron phosphate family energy storage series

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1. About Battery Pack Applications

This product is mainly matched with inverters, photovoltaic (PV) modules and related accessories to form a residential energy storage system (ESS). The system stores electricity generated by PV into the connected battery. The direct current (DC) from photovoltaic power generation can be converted into alternating current (AC) and supplied to the household grid.



(Note: The actual residential ESS may also include equipment such as distribution boxes and meters.)

The battery pack is a lithium-ion unit that stores electrical energy and outputs DC. It is electrically connected only to the inverter. PV power is converted into DC via the inverter and stored inside the battery pack. When power is required, the DC energy stored in the battery is converted into AC by the inverter and delivered to the household grid to power domestic loads.

The overall operation logic of the household energy storage system relies on the inverter. The lithium battery pack serves purely as an energy storage device.

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2. Features and Functions of Household Energy Storage System

● Self-consumption & energy arbitrage

Utilize solar power and lithium battery packs to reduce grid reliance. Energy can be stored during daytime and consumed at night.

● Emergency power supply

In the event of grid failure, the system can seamlessly switch to the lithium battery pack for backup power.

● Energy export

Electricity generated by photovoltaic arrays can be stored in the battery pack or exported and sold to power utilities.

● Off-grid power supply

The system supports connection with diesel generators to guarantee uninterrupted power supply.

Suitable for areas without municipal grid access, such as islands and remote mountain regions.

(Note: Energy dispatching logic is determined by the inverter. The lithium battery pack works with all compatible inverters. Not all functions above are supported by every inverter model.)

BMS Monitoring System for Lithium Battery Pack

Via the mobile application, users can monitor system status remotely. Available functions include:

- Real-time viewing of current, voltage and capacity status.
- Access energy consumption data and alarm records of the lithium battery pack.
- Adjust functional parameters of the lithium battery pack.



BMS Monitoring System

Bluetooth Monitoring System

Download the dedicated mobile APP for this product to operate the monitoring system on mobile devices. Supported functions are as follows:

1. Real-time monitoring of current, voltage and capacity usage.
2. Acquire energy consumption data and alarm records of the lithium battery pack.
3. Modify functional parameters of the lithium battery pack.

Please contact our company or local distributors to obtain relevant software and APPs.

(The lithium battery pack you purchased may not support all functions above due to different configuration models.)

Note: Modification of BMS and Bluetooth monitoring parameters requires prior modification permission from our company or local dealers, with professional technical support arranged. Unauthorized parameter changes that cause malfunction, damage or performance degradation will void the warranty.

3. Product Warning



4. Goods List



Battery



Power cord ×2



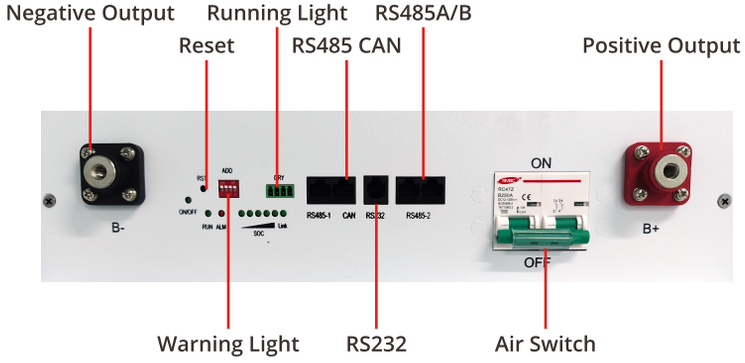
COM cable ×1



User Manual

Serial No.	Item	Description
1	Battery	Lithium iron phosphate battery pack
2	Power cord	Connection cable between battery pack and inverter
3	COM cable	Serial communication cable between battery pack and inverter
4	User manual	User manual

5. Port Definition



6. Description of Reset Switch

1. When the BMS is in sleep state, press and release the button. The protection board will be activated, and the RUN LED indicator will light up for 0.5 seconds.

2. When the BMS is in active state, press and hold the button for 3~6 s then release. The protection board will enter hibernation, and the lowest power indicator will light up for 0.5 seconds.

3. When the BMS is in active state, press and hold the button for 6~10 s then release. The protection board will reset, and all LED indicators will turn off simultaneously.

4. When the BMS is in active state, press the button three times within 5 s to trigger automatic re-coding of the BMS.

7. Battery Pack Sleep and Wake-up

Dormancy

The system enters low-power consumption mode when any of the following conditions is satisfied:

1. Single-cell or overall over-discharge protection is not cleared within 30 seconds.

2. The minimum cell voltage is lower than the sleep voltage, and the sleep delay time has elapsed (no communication, no protection, no balance, zero current).

3. Standby duration exceeds 24 hours (no communication, no charging/discharging, no mains power supply).

4. Forced shutdown via upper computer software.

Before entering sleep mode, ensure the input terminal is not connected to external voltage; otherwise, the system cannot enter low-power consumption mode.

After BMS reset, parameters and configurations set via the upper computer are retained. To restore factory default parameters, use the “restore default value” function on the upper computer. Operation logs and stored data (capacity, cycle counts, protection records, etc.) will remain intact.

Awaken

When the system is in low-power consumption mode and any of the following conditions are met, the system exits low-power consumption mode and enters normal operation mode:

1. When connected to the charger, the output voltage of the charger shall be greater than 48V.
2. Press the key and release it.
3. Activated via RS485 port.

Note: After single or overall over-discharge protection is triggered, the system enters low-power consumption mode. It wakes up regularly every 4 hours and activates the charging and discharging MOS. If charging is available, it exits sleep mode and enters normal charging. If automatic wake-up fails to initiate charging for 10 consecutive times, automatic wake-up will no longer occur.

If the system detects that the recovery voltage is not reached after 2 days of standby (standby time setting value) upon charging completion, charging will be forced to resume until recharging finishes.

8. Description of DIP:

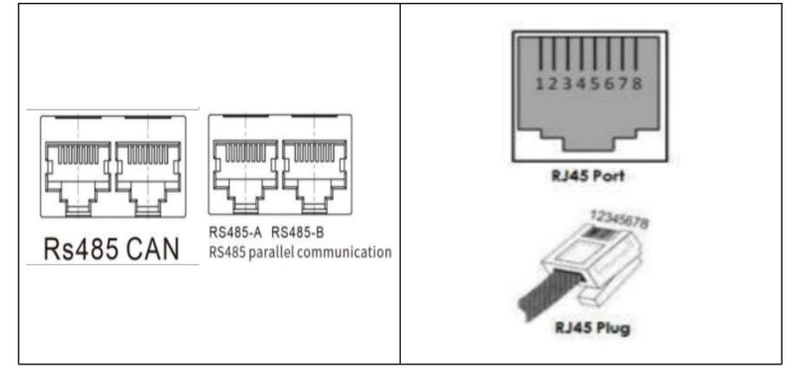
When battery packs are used in parallel, addresses for different battery packs will be automatically assigned.

9. Communication Description:

RS485
RS485 communication

Dual RS485 interfaces are provided for viewing battery pack information. The default baud rate is 9600 bps. If communication with monitoring equipment via RS485 is required, the monitoring equipment acts as the host to poll data by address; the address setting range is 2~15.

CAN
CAN Communication
CAN Communication, baud rate 500K



RS485 -- 8P8C vertical RJ45 socket		RS485 -- 8P8C vertical RJ45 socket	
RJ45 Pin	Definition description	RJ45 Pin	Definition description
1、8	RS485-B1	1、8	RS485-B1
2、7	RS485-A1	2、7	RS485-A1
3、6	GND	3、6	GND
4、5	NC	4、5	NC

Rs485 parallel communication pin definition

Both CAN and RS485 interfaces are used for communication with the inverter. The active interface is determined by the adaptive inverter. Refer to the CAN/RS485 interface definition table.

10. Weak Current Switch:

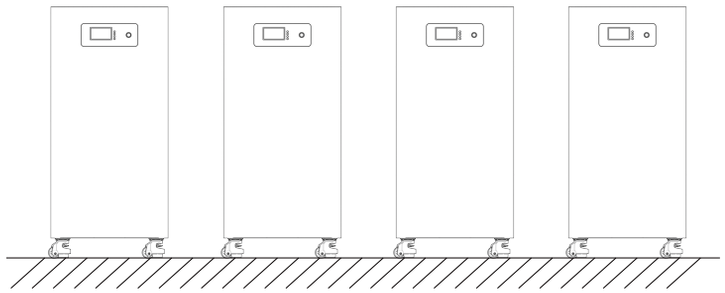


ON/OFF

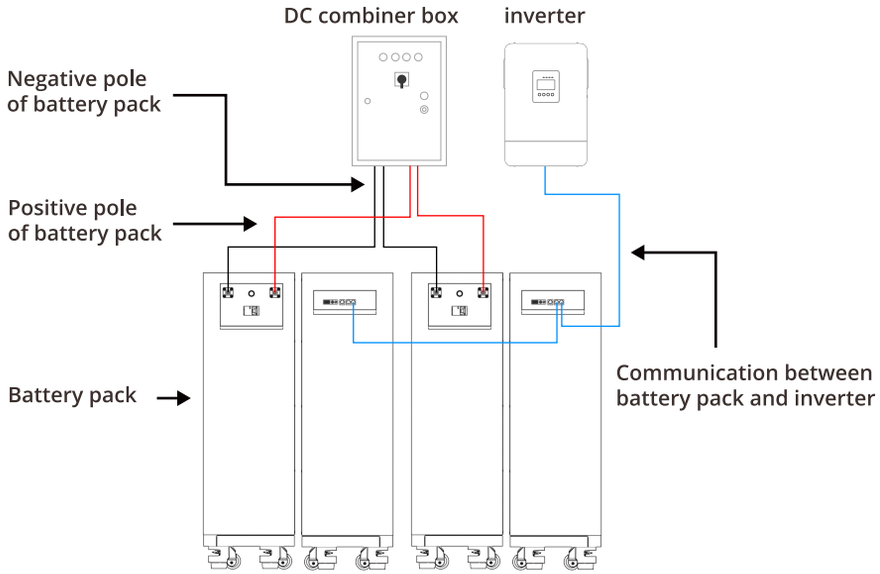
When the switch is pressed, the battery pack outputs voltage; when the switch is reset, the battery pack has no voltage output.

11.Installation Steps

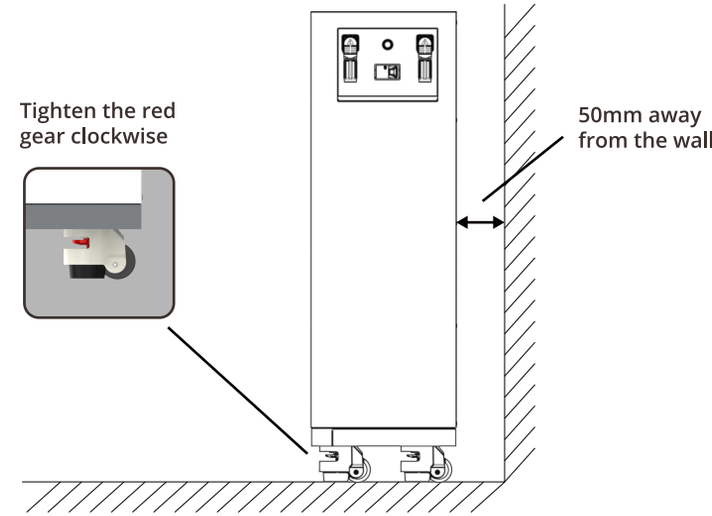
1) Select a flat surface and place the battery pack equipped with swivel casters on the surface.



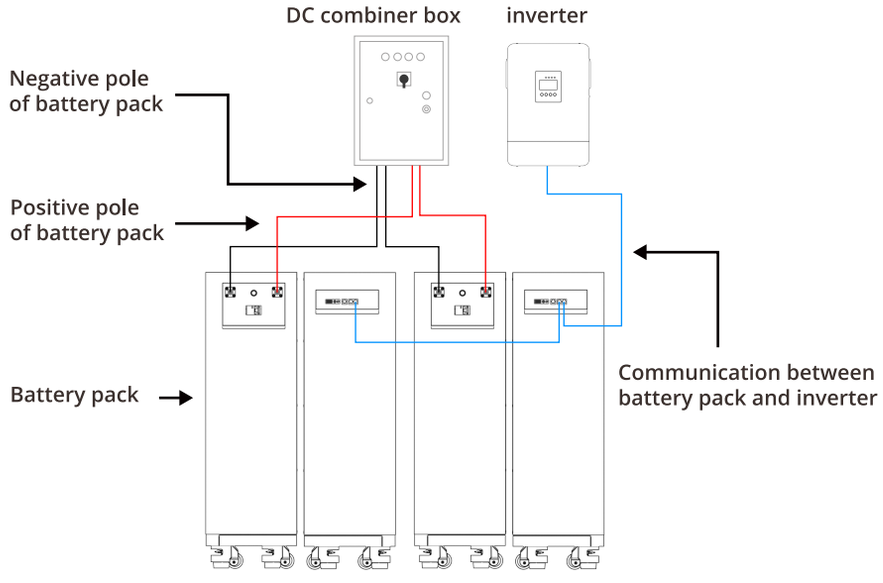
2) Connect the power cord according to the sequence of the wiring diagram.



3) After connecting the wiring harness, inspect the harness and perform a power-on test to verify normal operation. Push the battery unit to a proper position away from the wall (Note: The wiring side faces the wall; a clearance of 50 mm from the wall is recommended), then tighten the red adjustment gear of the casters on the bottom of the battery case clockwise.

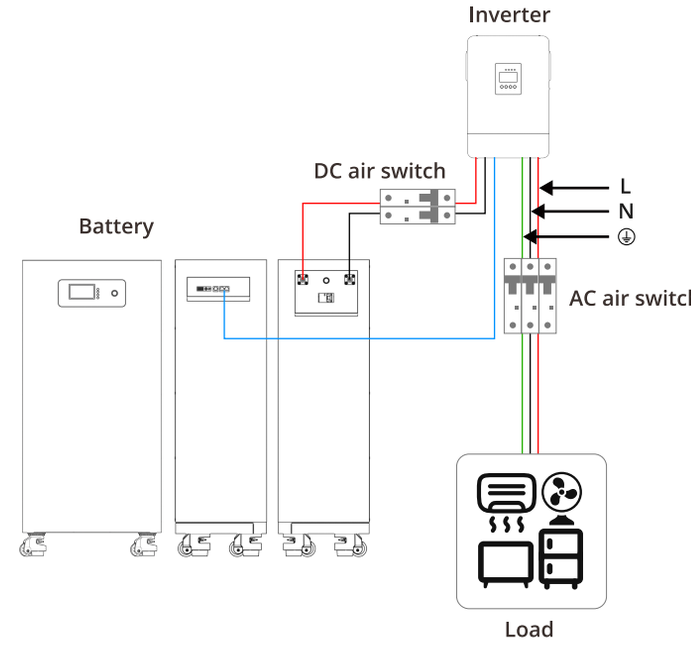


12. Example of Parallel Connection:



When there are more than four parallel units, it is recommended to add a DC combiner box on the output power supply line to ensure the stability and safety of the current when the battery pack is outputting high power.

Example of single parallel machine



It is recommended to add DC circuit breaker on the line connecting battery and inverter.

13. System Operation

The inverter provides control and monitoring functions through application programs. During normal operation, the battery pack is controlled by the inverter, and the power button of the battery pack shall be kept open.

Warning: Do not try to use third-party tools and diagnostic tools to communicate with Power Box between Power Box and the inverter.

Troubleshooting

If the system is not working properly,please perform the following steps:

Warning: The battery pack and inverter cannot be repaired by users, but must be repaired by certified installers.

Warning: If the failure of the battery pack causes the shutdown and cannot be solved in time,please report to KH or its authorized service partner in time. If it is not reported to KH or its authorized service partner within 2 weeks after the failure, the warranty is invalid.

●If the connection between the battery pack and the inverter does not respond

1. Check whether the battery pack is powered on and whether there is voltage output at the output terminal.
2. Whether the battery pack operation indicator is normal. If there is an alarm, refer to the LED operation table to check the alarm type.
3. Close all input and output circuit breakers of the battery pack and inverter.
4. Cut off all input and output circuit breakers in the distribution box.
5. Reboot matching.

(Note: If the communication between the battery pack and the inverter does not match, please contact our company or our authorized dealer for technical assistance.)

14. Technical Support:

If you need further help, please contact our service team through the support telephone in your region.

Please provide the following information when contacting our company.

- Customer Name
- Your valid contact information (landline, mobile phone or email)
- Specification and model of battery pack
- A brief overview of the problem

15. How to Deal with Emergencies:

If your health or safety is threatened, please start from the following two steps before handling the following other suggestions:

1.Please contact the fire department or other emergency teams immediately.

2.Notify all people who may be affected to ensure that they can evacuate the area.

The following recommended actions can only be performed under safe conditions.

In case of fire:

1.Turn off the inverter.

2.Press the power button to turn off the battery pack.

3.Cut off all input and output circuit breakers in the distribution box.

4.Acceptable types of extinguishers include:water, carbon dioxide and ABC extinguishers.

Avoid using Type D (flammable metal) extinguishers.

In case of flood:

1. If any part of the battery, inverter or electric wire is immersed in water, please keep away from the water.
2. Turn off the inverter.
3. Press the power button to turn off the battery pack.
4. Cut off all input and output circuit breakers in the distribution box.
5. Make sure there is no electrical connection to the power box.
6. If possible, protect the system by locating and shutting off the water source and draining the accumulated water.
7. Please contact our technical support or authorized dealer for assistance.

16. When the battery pack is not in use:

The battery pack is a lithium-ion battery product and shall not be stored for an extended period. No matter the reason the unit is shut down or idle, please note:
See the table below for storage requirements of the Power Box.

See the table below for storage requirements of power box.

Storage temperature	Short term storage: less than 1 month
	Long term storage: shall not exceed 3 months

Before the storage period expires, the battery shall complete a full charge-discharge cycle, and the final charging SOC shall be maintained at approximately 50%.
For long-term storage, it is recommended to charge the battery every three months to prevent over-discharge.

17. Handling of Cells

Prohibition of cells immersion into liquid such as water

The cells must never be immersed in liquids including water, seawater, soft drinks, juices, coffee and other liquids.

Prohibition of use of damaged cells

Cells may be damaged by impact during transportation. If any abnormalities are found, such as damage to the cell plastic envelope, deformed cell housing, electrolyte odor, electrolyte leakage and other defects, the cells must not be used again.

Cells emitting electrolyte odor or showing leakage shall be kept away from fire to prevent fire or explosion.

Do not short-circuit the positive and negative terminals of the battery; otherwise, internal short-circuit of the battery pack may occur and damage the unit.